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14. ABSTRACT During the initial months of the Second World War, the US learned difficult lessons, as expeditionary forces were isolated at Guadalcanal, left for weeks without proper supplies and reinforcements. When preparing for the difficult drive across the Central Pacific into the Gilbert and Marshall Islands and eventually on to Iwo Jima and Okinawa, the US succeeded in developing innovative forward-deployed sustainment capabilities in the form of advance and mobile bases. Today, a limited version of that capability exists in the form of Maritime Pre-positioning ships and the concept of the Sea Base. In order to achieve truly self-sufficient entry capability that existed in the Second World War, the US must resolve the technological shortfalls identified in the Joint Integrating Concept or continue to mitigate with other capabilities that inherently place limits on the employment of that Sea Base.				
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TITLE:

Sustainment of Expeditionary Forces in the Pacific Theater during the Second World War: The development of the Advanced Base and Mobile Base Programs and their Relevance Today

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Executive Summary

Title: Sustainment of Expeditionary Forces in the Pacific Theater during the Second World War: The Development of the Advanced Base and Mobile Base Programs and their Relevance Today

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Thesis/Purpose: What were the key innovations of the Pacific logistics infrastructure in World War II that made the long-range ocean war a success? This paper will review the Navy/Marine use of mobile bases, service squadrons, and the advance base program in order to evaluate how they enabled the successful projection and sustainment of forces in the Pacific. This paper will also consider how those techniques inform today's concepts of sea basing and maritime pre-positioning.

Discussion: Over the next several years, the military focus of the US will transition from counterinsurgency and nation building to partnership and crisis response. The influence of emerging powers like China and India, coupled with persistent instability from North Korea and territorial disputes in the South China Sea, will drive the US to a metaphorical and literal "pivot" to the Asia-Pacific Theater. A notable characteristic of this area is the delicate balance of power and political sensitivities that will limit the access that the US has historically profited from. Consequently, a renewed focus must be placed on the ability of the US to project and sustain expeditionary forces over the vast distances that the Pacific Ocean presents. Historical insight can be drawn from the US experience in the Pacific during the Second World War.

During the initial months of the Second World War, the US learned difficult lessons, as expeditionary forces were isolated on Guadalcanal, left for weeks without proper supplies and reinforcements. During the Central Pacific drive across the Gilbert and Marshall Islands and eventually on to Iwo Jima and Okinawa, the US succeeded in developing innovative forward-deployed sustainment capabilities in the form of advance and mobile bases.

Conclusion: Today, a limited version of that capability exists in the form of Maritime Pre-positioning ships and the concept of the Sea Base. In order to achieve the truly self-sufficient entry capability that existed in the Second World War, the US must resolve the technological shortfalls identified in the Joint Integrating Concept or continue to mitigate with other capabilities that inherently place limits on the employment of that Sea Base.

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Preface

As a logistics officer, I am naturally inclined to see military history through the prism of sustainment and combat service support. As the grandson of a Marine veteran of the Battle of Iwo Jima, I am interested in the experiences of Marines in the Second World War. As a military professional in an emerging post-war period, I am also focused on the president's intent to redirect the elements of US national power to the Pacific Theater. The combination of these three facts inspired me to investigate the logistics history of the Pacific Theater in the Second World War, specifically the Central Pacific drive to Japan.

As I began to develop the focus of my study, I identified several guiding questions. What is the real story of the legend of the Admiral Frank Fletcher's "abandonment" of the Marines on Guadalcanal? How did the Navy and Marine logistics team recover to conquer the Pacific Ocean distances and sustain their forces in combat? How did operational planning and sustainment planning influence each other? What were the key innovations that led to success, and are those lessons still resident in our expeditionary operations today?

In my initial literature search among the multitude of studies on the Second World War, several pieces quickly stood out as promising. Duncan Ballantine's Naval War College book on Naval logistics in the Second World War began to drive me toward a focus on mobile naval bases with his description of the development of the Service Squadron. The Department of the Navy's extensive documentation on advanced bases in the Bureau of Docks and Yards summary was a significant portrayal of the magnitude of the logistics effort. I also spent time reading the 1st Marine Division's official report of the Guadalcanal campaign, which provided many useful insights into the tactical-level challenges of logistics early in the war.

The study of these specific sources led me to the conclusion that advanced bases and mobile bases, above all other factors, were essential to the successful sustainment of the Marines and Sailors in the Central Pacific. I also knew that these concepts remain with the expeditionary forces today, albeit with modern terminology and equipment. I then focused my research on the historical development of the advanced bases and mobile bases, their relationship to the operational planning of the Central Pacific drive, and how these concepts and capabilities appear in today's Navy and Marine Corps.

I begin the paper with an introduction to some of key imperatives of the current US pivot to the Pacific Theater. I then include a summary of the context of the Second World War with respect to naval logistics, including some relevant notes from the interwar period. I then describe some of the initial logistics challenges that shape the sustainment failures of the first offensive land campaign at Guadalcanal. I proceed to describe the improvements to the advanced base plan and the developments of the mobile base through the completion of the war. Following this, I relate the key lessons from the Second World War to today's Maritime Prepositioning Forces and the concept of the mobile sea base as it is being developed today.

I owe a significant amount of gratitude to my mentor, Dr. Craig Swanson for his guidance during this process. His knowledge of the Pacific Theater of the Second World War was instrumental in helping me to shape my guiding questions and focus my research throughout this period.

Introduction

“Our Nation is at a moment of transition.”¹ These words begin the president’s personal statement in introduction of the Defense Strategic Guidance published in January 2012. The “transition” he describes is a shift from a wartime focus on counterinsurgency and nation building to a focus on partner development and forward presence around the globe. As the United States enters a new post-war era, the strategic focus will be on strengthening the country’s economy and supporting and developing free-minded people and nations around the world, including in the Asia-Pacific region.²

The renewed focus on the Asia-Pacific region is a clear recurring theme throughout the strategic guidance provided in the president’s message as well as the 2011 National Military Strategy. The emphasis is placed on renewing the US presence in the region and developing effective interconnected economic relationships, largely in response to the growing influence and military power of countries like India and China, as well as traditional partners like Japan and the Philippines.

Forward military presence and flexibility in the Asia-Pacific region have become increasingly complicated. Forward basing access efforts are now encumbered by sensitive political relationships. In addition, force projection in the Pacific has become more challenging due to technological improvements in anti-access and area denial capabilities.³ The primary solution to these challenges, as detailed in the Defense Strategic Guidance, is the expansion of the nation’s networks of cooperation with emerging partners throughout the Asia-Pacific to ensure collective capabilities and security.⁴

The Defense Strategic Guidance also describes the essential missions that make up the US Armed Forces capabilities of the future. Included in this mission set are the tasks of

projecting power despite anti-access measures, providing a stabilizing presence, conducting humanitarian assistance and disaster response, and deterring and defeating aggression.⁵ These missions will require the full strength and capabilities of the Navy and Marine Corps in the Pacific region.

The operational environment in which the Navy and Marine Corps team will be expected to conduct these missions is best characterized as extremely formidable. The Pacific region contains locales with little existing infrastructure thousands of miles from the US. Operating in areas where political sensitivities preclude the establishment of shore-based facilities creates a significant burden on the sustainment of the force. These factors drive the joint force to develop more expeditionary capabilities and smaller, self-sustaining logistics footprints.⁶

In order to comply with the guidance from these national documents, the US military must establish a renewed focus on the Asia-Pacific Theater. A particular emphasis must be placed on the country's ability to project and sustain power over vast distances and into areas with little capability or desire to host the requisite infrastructure. How does the US military move the people, equipment, and supplies thousands of miles across the Pacific Ocean? How then does the country sustain it?

During the Second World War, the US struggled with these very same questions. The rapid assaults of the Japanese across the ocean in late 1941 and early 1942 created a formidable barrier of previously unthinkable mass and distance. At the outbreak of war, the US was ill prepared to meet the challenge of projecting and sustaining forces across the Pacific. Although much thought and war games had been applied to the concept of a Pacific war in the form of War Plan Orange, fiscal austerity during the interwar period prevented investments in the equipment and resources to efficiently conduct this type of war. In the early years of the war, the US learned

difficult lessons in the art and science of theater-level logistics. Ultimately, mobile bases, service squadrons, and the advanced base program enabled the successful projection and sustainment of forces in the Pacific and informed today's concepts of sea basing and maritime prepositioning. The hard-learned lessons of the Second World War are still relevant today and can assist in the refinement of the existing capabilities necessary to accomplish the vision of the Defense Strategic Guidance, National Military Strategy, and the Quadrennial Defense Review.

Context

In retrospect, it is tempting to consider the underway replenishment of seagoing vessels and the advanced base concept as a natural evolution of technology during the Second World War. To do this would discount the decades of experimentation, battles of prioritization, and the ultimate trial by fire that was experienced during the initial months of the war. The evolution of the expeditionary forces from a fleet initially concerned with simply enduring the trip from San Francisco to Pearl Harbor to a fleet capable of self-sustainment by a Service Force of over 2,900 ships over thousands of miles of ocean began almost 30 years previously.⁷

As early as 1904, the idea of a mobile base entered the imagination of Naval Officers by the proposal of an Army civil engineer named A.C. Cunningham.⁸ Although certainly enticing, the idea was beyond the technical limitations of the day and could hardly be justified in the relative naval dominance of the post-Spanish American War. During the First World War, however, the use of two destroyer-tenders at Queenstown, Ireland for underway repair work began to convince many of the feasibility of the concept.⁹

Following the First World War, and throughout the early 20th century, the dominant source of economic strength was a country's ability to trade with partners across the seas.

Therefore, the buildup of maritime dominance in the wake of the Great War began to take the form of an arms race. England was forced to recognize that it was no longer the global leader in maritime power, and limited its overseas interests to protecting India and Australia. Japan sought to extend its influence in the weakened Chinese sphere¹⁰ as well as to command the island chains acquired as part of the Treaty of Versailles (including the Marianas, Palau, Caroline, and Marshall Island groups.) The US sought to protect its territories in Hawaii, the Philippines, and Guam, as well as to prevent Japan from completely dominating the Pacific.

In response to this escalation, the Washington Naval Treaty of 1922 redefined the balance of naval power throughout the world. In a display of diplomatic maneuvering, the Japanese accepted a naval force ratio of 60% of the US strength. In return for agreeing to limit Japanese capital ship construction, the US agreed to the Japanese proviso that no island fortifications or advanced bases would be built in the Pacific.¹¹ This gave the US relative assurance that the Japanese would not be able to launch an attack on the US directly, and provided the Japanese the confidence that they could defend in depth against a larger US invasion. However, the plan left the Philippines and Guam wholly unprotected, since the US had no means of projecting power sufficiently to protect them. For a full account, see Appendix A, Excerpt from the Washington Naval Treaty of 1922.

During the interwar years, however, the development of mobile and advanced base concepts did not gain significant traction due in large part to the extraordinary military budget cuts and eventually the impact of the US Great Depression. Some experimentation in underway refueling took place, but this was mostly seen as a measure to be employed in emergencies, and did not include significant development in supply handling.¹²

Between 1935-1940, war with Germany and Japan was considered almost inevitable. US war planners began to revise War Plan Orange in anticipation of a conflict with Japan. These revisions included plans for securing advanced bases as far west as the Marshall and Caroline Island chains in preparation for an attack on Japan.¹³ The war planners, however, paid scant attention to the details associated with how the expeditionary forces would project and sustain themselves throughout that venture. This is evidenced by the fact that even when President Franklin Roosevelt proclaimed a limited national emergency in 1940, increasing production of naval vessels in anticipation of war, the ratio of support and transportation vessels to capital ships was “woefully inadequate” and did not include provisions for construction of advanced bases.¹⁴

On 7 December 1941, the existing advance base infrastructure was in its developmental stages and only included plans for air ferry routes between Hawaii and the Philippine Islands.¹⁵ However, ground had been broken at Midway and Wake islands for air stations and a communications center was being constructed in the Fijis. Due to US adherence to the Washington Naval Treaty of 1922, no defensible forward supply bases existed outside of Pearl Harbor and the Philippine islands.¹⁶

Although many US planners assumed that the loss of the Philippines and Guam was inevitable during the initial months of the war, the President’s initial response to the subsequent Japanese invasion of the Philippines was to do everything possible to support General Douglas MacArthur’s forces there. This effort led to the first planned forward support base to be located in Australia and outfitted with 60 days of supply.¹⁷ The implied task was the establishment of a chain of island bases along the sea line of communication between the US and Australia.¹⁸

As Army and Navy planners assessed the available options for forward bases, it was quickly clear that few good options existed. The majority of the candidate outposts were tiny atolls¹⁹ or small island chains which had little, if any, industrial base or facilities. Many even lacked sources of potable water and proper port or beach facilities. Construction of advanced bases in the Pacific would require building almost all facilities to include ports, storage capacity, airfields, billeting, and headquarters from the ground up.²⁰

By the end of January 1942, the Japanese had captured Guam, Wake, Singapore, New Britain, and were firmly entrenched in the Philippines. They also began constructing a forward base of their own at Rabaul on New Britain. From this location, they could strike at the Australian base on New Caledonia, the American facilities in the Fijis, and eventually Australia directly, threatening the line of communication from the US.²¹ Partially in response to this threat, Admiral Richmond Turner, the future commander of the Pacific Amphibious forces, directed the plan for advanced base construction equipment and supplies to be organized for three main fleet bases and 12 secondary bases. Unfortunately, the first of these pre-arranged equipment packages would not be ready for shipment until July of 1942.²² As an interim measure, the US identified the urgent need to prepare some form of overseas facility capable of reception and transshipment of supplies to support Australia and the Philippines. In this effort, the Army and Navy would stumble through great difficulties during the first half of 1942.

The Early Months in Support of The Solomons and Australia, 1942

During December 1941 and January 1942, US war planners developed plans for the initial deployment of forces and the establishment of the first advanced bases in support of the Pacific Theater.²³ The first priority was to establish a naval refueling station at the island of Bora

Bora in January. This was to be followed in February by the deployment of troops to Efate and Tongatabu in preparation for eventual supply facilities. Between March and May, the US would begin to establish facilities at Espiritu Santu, the Fijis, and Auckland, New Zealand.

The first logistics expedition to the Pacific at Bora Bora is a case study that began full of optimistic urgency, but was followed by considerable physical challenges. Codenamed “Bobcat,”²⁴ the mission included the establishment of a refueling station with a tank farm, a small seaplane base, harbor installations, unloading facilities, coastal defenses, and other essential services. The initial plan called for the Army to be responsible for supply and subsistence ashore as well as for the island defense, while the Navy would provide for transportation to the island and construction of the facilities.

Immediately upon approval to launch the mission, problems arose, the solutions to which would directly influence the future establishment of advanced bases in the Pacific Theater. The Navy immediately struggled with the lack of adequate shipping for the expedition, a problem that would be pervasive throughout the war.²⁵ The actual departure date was delayed several times, eventually leaving the ports almost a full month after intended. Upon arrival, it became clear that the Navy did not have adequate doctrine and procedures for embarkation and unloading of craft in support of advanced bases. For example, ship to shore movement was hindered by the improper location of barges inside the ships that were essential for movement of equipment.²⁶ Boxes were poorly marked or not marked at all, and equipment needed in support of the offload was not readily available in the offload plan.

In addition to the lack of adequate planning to support the offload, the joint expedition quickly realized it had overestimated the capabilities of the island to support the entire initiative. For instance, there were no adequate port facilities to support the offload, no fresh water supply

and insufficient roads to support movement of military vehicles. Due to the inadequacies of the plan, it took 52 days just to offload the convoy of ships, and several months before Bora Bora was capable of performing its mission. Subsequent expeditions to Efate and Tongatabu resulted in similar challenges.²⁷

As a result of the arduous expeditions to Bora Bora, Efate, and Tongatabu, Army and Navy planners quickly learned that in order to establish advanced bases in the Pacific, massive infrastructure capabilities as well as construction personnel were necessary. Future expeditions would require many more service troops and better embarkation plans to support the offload process. Unfortunately, the rapid advance of the Japanese into the South Pacific islands and the chronic lack of shipping precluded a deliberate and measured revision of logistics plans already underway. The US shortly found itself with an imminent requirement to take offensive action in order to halt the advance of the Japanese.

More Discovery Learning, The Guadalcanal Campaign, 1942-1943

Throughout the first half of 1942, the Japanese were aggressively advancing in the Pacific. As an island country, Japan was inherently at a disadvantage with respect to the possession of natural resources. Additionally, harsh embargoes were enacted by the US and its allies in response to years of Japanese aggression and occupation of China and northern Indochina. For example, before bombing Pearl Harbor, the Japanese estimated their petroleum reserves would be exhausted within two years.²⁸ In order to establish dominance in the Pacific and sustain their independence, they began an island-capturing campaign for resources as well as to expel the US, British, and Dutch forces from their sphere of influence. With the rapid conquests in the Pacific including Singapore, Burma, Wake Island, Guam, and a crushing defeat

of US forces in the Philippines, the Japanese were well on the way to achieving their strategic goals.²⁹ Even the loss of four aircraft carriers at Midway did not defeat nor deter the Japanese from their targets in the South Pacific: the Solomon Islands, Fiji, and New Caledonia.³⁰ With the capture of these islands, the Japanese could threaten the American sea lines of communication with Australia and New Zealand, further isolating these countries and deterring U.S. involvement in the region. For a depiction of the strategic lines of communication, see Appendix B, Strategic Lines of Communication.

In order to counter this threat, the US, working with the Allied countries of Australia, New Zealand, and New Caledonia, needed to stop the Japanese expansion in the Solomon Islands, protect their sea lines of communication, and begin to attrite the Japanese. This would enable offensive operations in the southern Pacific Ocean to eventually retake the lost territories.³¹ Between August 1942 and February 1943, Operation WATCHTOWER was conducted to seize an advanced naval and airbase at Guadalcanal and Tulagi in order to support future operations to control the Solomon Islands and to reduce the Japanese stronghold at Rabaul in New Britain.³²

In order to support Operation WATCHTOWER and the subsequent landings for Operation CARTWHEEL, the Allies were completely dependent upon whatever supplies that could be built up in theater at the small outposts. Over the course of the first eight months of 1942, many advanced bases were beginning to be built. However, the effort was hampered by long delays in construction and a lack of support troops and shipping. The closest bases to Guadalcanal were Efate and Espiritu Santo, but these were not much more than protected anchorages, and were incapable of large on-shore transshipment facilities at the time.³³ The port facilities at Noumea became the closest installation with any capacity to support the operation.

However, even Noumea had limited facilities for docking ships and port use was burdened by agreements to share it with the French Nickel Company.³⁴ For a depiction of the bases in support of Guadalcanal, See Appendix C, Advanced base proximity to Guadalcanal.

Even after eight months of war, these advanced bases were few and very far between. The facility at Noumea, the most promising of all for support of Guadalcanal, was located 900 miles away. The theater hub of Auckland, New Zealand, was a staggering 1,500 miles from Guadalcanal.³⁵ Even the closer, yet embryonic-level logistics nodes of Efate and Espiritu Santo were located 700 miles and 560 miles away from Guadalcanal, respectively.³⁶

The Navy and Marine team launched their first ground offensive action of the war at Guadalcanal with no plan in place or sufficient supplies on hand to support the expeditionary forces after the initial landings. The operation quickly acquired the undesirable nickname “Operation SHOESTRING,” due to the precarious and minimal supply planning. To make matters worse, only half the supplies intended for the initial offload were delivered. This was due to Admiral Frank Fletcher’s decision as commander of the aircraft carrier groups to remove his ships from the battle area. Fletcher, a recent veteran of the Battle of Midway and the Coral Sea, was very concerned with the possibility of a land-based aviation threat and the threat of enemy carrier forces attacking his forces. Fletcher began the withdrawal of his carrier forces on the evening of 8 August, only one day after the initial landing. The subsequent lack of air support left Admiral Richmond Turner, commander of the amphibious task force, no choice but to remove his unprotected ships from the area.³⁷

Due to the insufficient facilities at northern bases like Noumea, Efate, Espiritu Santo, and the Fijis, requirements for supply were routed via airmail from Guadalcanal to Auckland, New Zealand, and back to the US. The supplies to fill these requests then began their voyage across

the sea to Auckland before being transshipped to Noumea and eventually to Guadalcanal. This was the manner in which the expeditionary forces were supplied for the first two months of the campaign.³⁸

The lack of capacity at the primary forward hub of Noumea created an immense backlog of supplies and congestion in the waters. During the first two months of the campaign, supplies began to arrive from Auckland to Noumea, but the port lacked the facilities to offload and transfer for further shipment to the Marines and soldiers at Guadalcanal. At one point, there were as many as 86 ships waiting in the harbor for an opportunity to be serviced.³⁹ This created an emergency for the forces at Guadalcanal as the lack of food and supplies limited the tactical actions and ultimately delayed the campaign.

On 18 October 1942, Admiral William Halsey relieved Admiral Robert Ghormley as Commander of Forces in the South Pacific. In November 1942, as one of his first actions as commander, he obtained approval to relocate the primary support hub from Auckland to Noumea. He also invested heavily in the expansion of the port for use in support of the Guadalcanal operation.⁴⁰ In addition to relocating a significant amount of supplies to a location hundreds of miles closer to the expeditionary force, this move also began the direct shipment of supplies from the US to Noumea, effectively cutting out the intermediate logistics node and shortening supply delivery times. This method of direct shipment from the US to the closest logistics node to the fight would quickly become the norm for the remainder of the Pacific war.

During the supply crisis at Noumea, when scores of vessels waited fully loaded in the harbor, sailors made an inadvertent discovery that would influence future logistics innovation for the war effort. Many naval officers, although scorned for the lack of efficiency of having ships remain anchored and unused, defended the situation by explaining that these vessels could

effectively act as floating dumps, their cargo mobile on the water and capable of moving forward in the battlespace as their need demanded. The Noumea crisis, therefore, stimulated the search to create a “mobile base” capability. In late 1942, the Navy went so far as to experiment with barges of different types for storage of supplies at sea, but found that the equipment necessary to build them in sufficient quantities was unavailable at the time. The Navy continued to explore this effort, but was not successful until much later in the war.⁴¹

During the Guadalcanal campaign, the Pacific Theater logistics challenges quickly became clear to the nation. The vast distances that supplies needed to traverse demanded significant ports and advanced bases, immense storage facilities, and a great amount of service personnel to manage transshipment.⁴² With a typical World War II-era merchant ship speed between 5-15 knots, these distances had immense operational impacts.⁴³ A round trip from California to the supply base in New Zealand (stopping in Hawaii while en route) covered a distance of over 14,000 miles and lasted over two months. Additionally, there was significant redundancy and lack of efficiency within the existing supply channels. For the whole of 1942, the Army and Navy supported themselves independently, with little or no coordination or consolidation of supply requirements.⁴⁴

The lessons learned from the Guadalcanal campaign slowly but surely were incorporated into the logistics and campaign planning for the Pacific Theater. A balance was tentatively struck between service loyalty and the efficiency of joint logistics operations with the creation of the Joint Board and the creation of “common-user” logistics support responsibilities between the Army and Navy.⁴⁵ The need for a large build-up of supplies prior to an invasion was clear, and led to nearly a year-long delay of follow-on operations in the Solomon Islands. After Guadalcanal, the Allies fully appreciated the need to push logistics nodes as far forward as

possible, with direct shipments made from the national source of supply in order to avoid unnecessary delays given the enormous distances involved.

By the end of 1942, the advanced base program grew to a high priority in the US. The US employed exhaustive measures to build out the advanced bases of Espiritu Santo, the Fijis, and Noumea, and thousands of tons of equipment and supplies were sent to begin the build up for subsequent operations.⁴⁶

Advanced bases as operational goals, and the beginnings of the mobile base, 1943-1944

In addition to the supply chain lessons learned during the war's first offensive strike, there was an acute realization that the Pacific Theater required a high level of interdependence between the operational and logistics planning efforts. For the remainder of the war, operational planners sought out targets of logistical value, such as ports, harbors, sheltered anchorages, and airfields. Capture of these targets enabled the immediate creation of another advanced base, which propelled the campaign and increased the operational reach of the forces. As the Allies established Guadalcanal as a forward supply and staging point, it also became clear that sea-based aviation could be used to support land-based troops in an effort to create forward land-based air stations to support further sea-based assaults.⁴⁷ This mutually supporting method became the nexus for the island-hopping campaign.

Global strategy began to evolve with the events in the South Pacific at the Trident Conference in Washington during May 1943. During this conference, the military and political leadership of the US and Britain attended to discuss the follow-up to the success of the North Africa Campaign. The British desired to continue to the campaign into Italy and the "soft

underbelly” of the German forces. The Americans desired to conduct a cross-channel invasion to liberate France in addition to exploiting the early success of the Pacific campaign in the Solomon Islands against Japan. One of the significant areas of debate was the shortage of landing craft to be allocated to each front. The conference members decided on a compromise in which the invasion of Italy was executed simultaneously with continued pressure in the Pacific. The cross-channel invasion was given a firm, yet delayed start date in 1944.⁴⁸

During the subsequent Quadrant Conference in Quebec during August 1943, the joint planners proposed five different lines of operation in the Pacific. The choices, however, narrowed to the Central and South Pacific routes as planners constrained themselves to attempt to accomplish victory against Japan within one year of the surrender of Germany.⁴⁹ The Allies agreed to pursue two lines of advance in the Pacific: MacArthur’s Southwestern Pacific thrust to recapture the Philippines, and Nimitz’s Central Pacific drive toward Japan.⁵⁰

The Central Pacific drive would demonstrate many logistics improvements as a result of the lessons learned from the Guadalcanal campaign. In this case, Pearl Harbor, like Noumea in the South Pacific, became the initial staging base, with thousands of Marines and tons of equipment and supplies being assembled for the initial assault. The initial targets, the Makin and Tarawa atolls of the Gilbert Islands, were ideal for the establishment of advanced air bases and supply depots. The expeditionary campaigns of the Central Pacific were all fought for these logistics purposes.⁵¹

Additionally, during 1943 and into early 1944, the Navy began to have success with their experiments with the concept of the mobile base. This effort enabled their forces to become more independent, with a greater operational range and decentralization. They also began to

dramatically increase the amount of surface fleet support vessels in support of the Gilbert Islands campaign.

The mobile base enters the war, 1943

Throughout the war, the Navy employed a decentralized supply system. This enabled flexible and responsive support to the individual fleet commanders that was necessary in the type of remote operations being conducted. As the war planners developed the concept of operations for the Central Pacific drive, it became clear that land-based sustainment would be extremely challenging. The amount of shipping and land-based facilities necessary to support the fleet across the Pacific would demand months of construction and transportation of supplies across the ocean.⁵²

In its experiments with floating supply dumps, the Navy found a balance of supply capacity and ship availability that enabled the creation of the first Service Squadron specifically intended to support an underway fleet. These ships carried the fuel, ammunition, food, and repair capabilities in a convoy with the battle fleet, and were even capable of underway replenishment. This effectively became a mobile advanced base that could be moved from one anchorage point to another with relative ease.⁵³

As the Gilbert Islands campaign began, this mobile base concept enabled the transportation of all the anticipated logistics requirements of both the Navy and Marines along with the movement of the force into the assault. This freedom from the umbilical cord to Pearl Harbor created the much-needed flexibility for the assaults. Once the atolls were taken, advanced bases were quickly established and supplies began to flood the staging areas from Pearl Harbor. As the campaign came to a close, the Navy's challenge became the requirement to sustain the

mobile base and the advanced bases at the atolls, while rebuilding the stocks of supplies necessary for the next advance into the Marshall Islands.⁵⁴

The Gilbert Islands campaign proved that the vast distances traveled and the immense amount of supplies and equipment needed for the initial assaults were insurmountable without bringing those supplies along with the convoy. The success in the Gilbert Islands campaign validated the concept of the mobile base. The mobile base, used in concert with the advanced base program, enabled the rapid projection of power across the Pacific Ocean as airfield after airfield was secured and immediately put to use against Japanese positions closer to the Philippines and Japan and as the Marines and soldiers of the expeditionary forces were propelled with their supplies and equipment.

Mature theater logistics, 1944-1945

By the middle of 1944, allied supply lines of communication in the Pacific Ocean were stretched further than ever. The efforts to sustain the momentum of the westward movement of forces challenged even the mobile and advanced base programs. Not only was the distance between the expeditionary force and the US growing, but so was the distance between staging areas and subsequent objectives, sometimes as far as 5,000 miles.⁵⁵

The end of 1944 brought a sense of inevitability of US victory in the Pacific struggle. However, new logistics challenges were presenting themselves. The logistics infrastructure in the Pacific was growing mature and massive. The advanced base program was now challenged with the need to roll facilities forward as the rear elements of the logistics infrastructure were no longer needed.⁵⁶ Bases like Guadalcanal, Efate, and Noumea were now far to the rear of the expanding operational zone of the Allies. Additionally, the creation of the Service Squadron 10,

previously assembled from Service Squadron 4 and additional vessels, began its massive and slow movement from Eniwetok to Ulithi in preparation for the support of operations in Marianas and Ryukyus.⁵⁷ For a photo of the mobile base, see Appendix D, navy mobile base anchored at the Ulithi Atoll, 1945.

As 1945 began and the expeditionary forces of the Central Pacific prepared for the closing battles at Iwo Jima, Okinawa, and the anticipated invasion of the Japanese home islands, the theater logistics program was in full stride. Over 400 logistics hubs and air bases were sprinkled across thousands of miles of ocean and the Navy had 152 floating dry docks for sea-based repair of vessels. For an example, see Appendix E, floating dry docks used for underway repair of ships. The Navy, Marine, and Army expeditionary team became proficient in the employment of vast floating supply dumps with flexible offloading capabilities. The use of ship-to-shore connectors was perfected as more advanced landing craft and transport vessels were built and employed. The expeditionary forces fully realized the requirement to push supplies as far forward as possible in the most flexible manner possible to support operations in the Pacific.

It is these final lessons; the floating supply dump with flexible offloading capabilities, the ship-to-shore connector, and the doctrine of self-sustaining, forward supplies that has remained part of the institutional knowledge base and concepts of expeditionary sustainment in the 21st century.

Maritime Prepositioning Squadrons: The Floating Dumps of the 21st Century

The legacy of the mobile supply base remains with the Navy and Marine Corps expeditionary mindset in today's Maritime Prepositioning Forces. Doctrinally, seventeen ships are employed in three Maritime Prepositioning Squadrons (MPSRON) located in the

Mediterranean Sea, the Indian Ocean, and the western Pacific Ocean to provide constant forward presence of supplies and equipment. However, currently only fourteen ships exist in the inventory. For a depiction of geographic locations, see Appendix F, MPSRON operational locations. Each MPSRON is intended to carry all the necessary equipment and supplies to sustain a Marine Expeditionary Brigade (MEB) for 30 days.⁵⁸ At the end of 2012, a major MPSRON restructuring program was completed, eliminating MPSRON One and placing many of its ships in a reduced operational status.⁵⁹ Realistically, therefore, with the current restructuring of the MPSRONs and the increase in the MEB footprint, the carrying capacity of the prepositioning fleet is less than three full MEBs.

In terms of functionality, however, the current MPSRON capability has significantly improved the arrival and assembly time requirements for an amphibious force. Compared to the months required for World War II era assembly, embarkation, and movement, today's MEB can begin link-up with the equipment of a MPSRON in a matter of days. These ships have the capability to discharge cargo pier side or while anchored offshore in sea state three with the use of ship-to-shore connector vessels that are carried onboard.⁶⁰

The greatest limitation of the MPSRON today is the requirement for a largely permissive environment for its use. The MPSRON vessels are not equipped with self-defense measures, and require a secure location with adequate force protection in place.⁶¹ This limitation is overcome, however, by the Navy and Marine Corps' use of the Marine Expeditionary Unit, a reinforced battalion-sized force of Marines onboard Navy amphibious vessels, to secure an advanced port facility to offload the equipment of the MPSRON.

The Navy and Marine Corps team continue to develop and advance the capabilities of the expeditionary employment of the MPSRON. Future initiatives focus on increasing the

interoperability of the MPSRON vessels with newer and high-speed ship-to-shore connectors and more flexible offloading options.⁶²

The MPSRON floating dump provides the capability to rapidly project combat power across the Pacific by pre-staging the equipment and supplies. It does not, however, provide a capability for command and control of operations to be conducted like the truly mobile bases of the Second World War. For this capability, the Maritime Prepositioning ships must be integrated into the Seabasing concept.

Seabasing in the 21st Century: The key to rapid force projection in the Pacific Ocean.

As described in the National Military Strategy and Defense Strategic Guidance, the nation's future demands on the expeditionary forces in the Pacific will be provided relatively little forewarning. To complicate matters, the areas where Marines and Sailors will deploy will likely not have significant capabilities to host large land-based facilities, further, regional political sensitivities will likely also preclude their use. The 21st century mobile base, in concept similar to the mobile bases of the Second World War, is the solution to this challenge.

The evolution of doctrine over the past 70 years now refers to this entity as the sea base. Recent developments of this concept indicate that “the sea base of the future will be an inherently maneuverable, scalable aggregation of distributed, networked platforms that enable the global power projection of offensive and defensive forces from the sea, and includes the ability to assemble, equip, project, support, and sustain those forces without reliance on land bases within the Joint Operations Area.”⁶³ If some of the modern terminology was removed from the preceding sentence, this statement is very likely similar to the guidance provided by Admirals

Richmond Turner and Chester Nimitz in their preparation for logistics support to the invasion of the Gilbert Islands in late 1943.

Similar to the 1944 mobile base, today's sea base concept enables the deployment of expeditionary forces directly from their home station or a secure advanced base, directly to the objective area. Marines can then link up with prepositioned assets from the designated MPSRON, deploy directly to the objective area via aircraft or high-speed sea craft, and be sustained indefinitely. For a depiction of the concept, see Appendix G, Joint Integration Concept: Seabasing illustration.

Although conceptually similar to the mobile base of the Second World War, today's sea base is different in one critical area: after 70 years it is not yet fully mission capable. It is ironic that 70 years of technological development has actually decreased the ability of the sea base to operate as a cohesive unit relative to the requirements of the day. In today's operating environment with current technology, deficits still exist in the development of the necessary ship-to-shore connectors to overcome the greater distances from which the sea base operates in order to counter anti-access capabilities. Additionally, full interoperability between the sea base, the prepositioning ships, and ship-to-shore connectors has not been reached. Developments in selective offload capabilities are still underway, which are required in order to create the necessary flexibility to conduct multiple types of operations from the sea base.⁶⁴ These functionalities existed during the Second World War and enabled a fully capable expeditionary force, albeit with rudimentary technology in today's standards. For a graphical depiction of the integration of seabasing technology, see Appendix H, Seabasing integration illustration.

The sea base concept has, however, shown great success when its shortfalls are mitigated by other capabilities. For example, small units like Special Operations Forces are able to operate

off of a sea base using organic aviation lift capabilities. Their demand for supplies is minimal, and can easily be satisfied by the existing capabilities of the sea base. Additionally, when a Marine Expeditionary Unit, previously embarked on board amphibious shipping, is employed in conjunction with a sea base and a MPSRON, the capabilities for ship-to-shore connectors and small on shore logistics facilities can be used to enable long-term sustainment of the force, as seen in both Operations ENDURING FREEDOM and IRAQI FREEDOM.

Conclusion

Over the next several years, the military focus of the United States will transition from counterinsurgency and nation building to partnership and crisis response. The influence of emerging powers like China and India, coupled with persistent instability from North Korea and territorial disputes in the South China Sea, drive the US to a metaphorical and literal “pivot” to the Asia-Pacific Theater. Delicate balances of power and political sensitivities will limit the access that the US has historically profited from. Consequently, a renewed focus must be placed on the ability of the US to project and sustain expeditionary forces over the vast distances presented by the Pacific Ocean.

These challenges are certainly not new. Embedded in the Navy and Marine Corps’ institutional experiences are the solutions to the challenges of expeditionary sustainment over the great distances in the Pacific Ocean. During the initial months of the Second World War, the US learned difficult lessons, as expeditionary forces were isolated on Guadalcanal and left for weeks without proper supplies or reinforcements. When preparing for the difficult drive across the Central Pacific into the Gilbert and Marshall Islands and eventually on to Iwo Jima and Okinawa,

the US succeeded in developing innovative, forward-deployed sustainment capabilities in the form of advanced and mobile bases.

Today, a limited version of that capability exists in the form of Maritime Prepositioning ships and the concept of the Sea Base. In order to achieve the truly self-sufficient entry capability that existed in the Second World War, the US must resolve the technological shortfalls or continue to mitigate with other capabilities that inherently place limits on the employment of that sea base.

Appendix A
Excerpt from Washington Naval Treaty of 1922

TREATIES AND RESOLUTIONS OF THE WASHINGTON CONFERENCE,
1922

Article XIX of Treaty 1:

The United States, the British Empire and Japan agree that the status quo at the time of the signing of the present Treaty, with regard to fortifications and naval bases, shall be maintained in their respective territories and possessions specified hereunder:

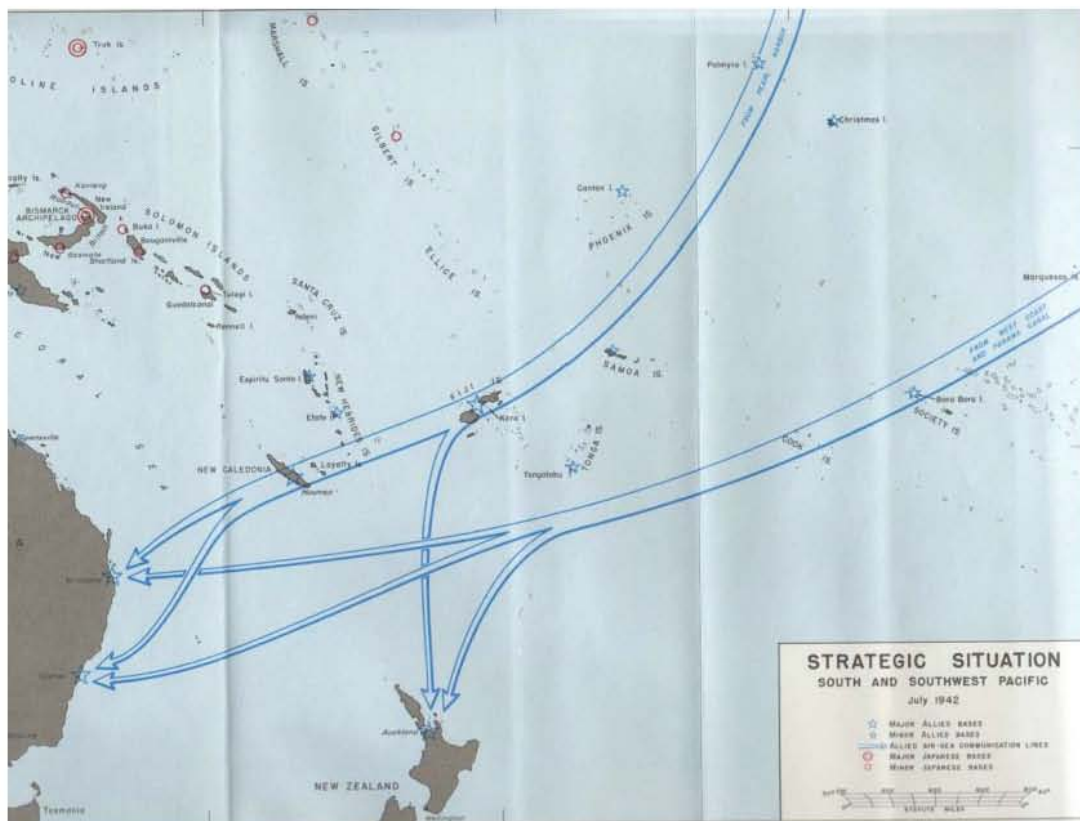
- (1) The insular possessions which the United States now holds or may hereafter acquire in the Pacific Ocean, except (a) those adjacent to the coast of the United States, Alaska and the Panama Canal Zone, not including the Aleutian Islands, and (b) the Hawaiian Islands;
- (2) Hongkong and the insular possessions which the British Empire now holds or may hereafter acquire in the Pacific Ocean, east of the meridian of 100° east longitude, except (a) those adjacent to the coast of Canada, (b) the Commonwealth of Australia and its Territories, and (c) New Zealand;
- (3) The following insular territories and possessions of Japan in the Pacific Ocean, to wit: the Kurile Islands, the Bonin Islands, Amami-Oshima, the Loochoo Islands, Formosa and the Pescadores, and any insular territories or possession in the Pacific Ocean which Japan may hereafter acquire.

The maintenance of the status quo under the foregoing provisions implies that no new fortifications or naval bases shall be established in the territories and possessions specified, that no measures shall be taken to increase the existing naval facilities for the repair and maintenance of naval forces, and that no increase shall be made in the coast defences of the territories and possessions above specified. This restriction, however, does not preclude such repair and replacement of worn-out weapons and equipment as is customary in naval and military establishments in time of peace.

Source: Emily Goldman, *Sunken Treaties* (University Park, PA: The Pennsylvania State University Press, 1994), 278

Appendix B

Strategic lines of communication



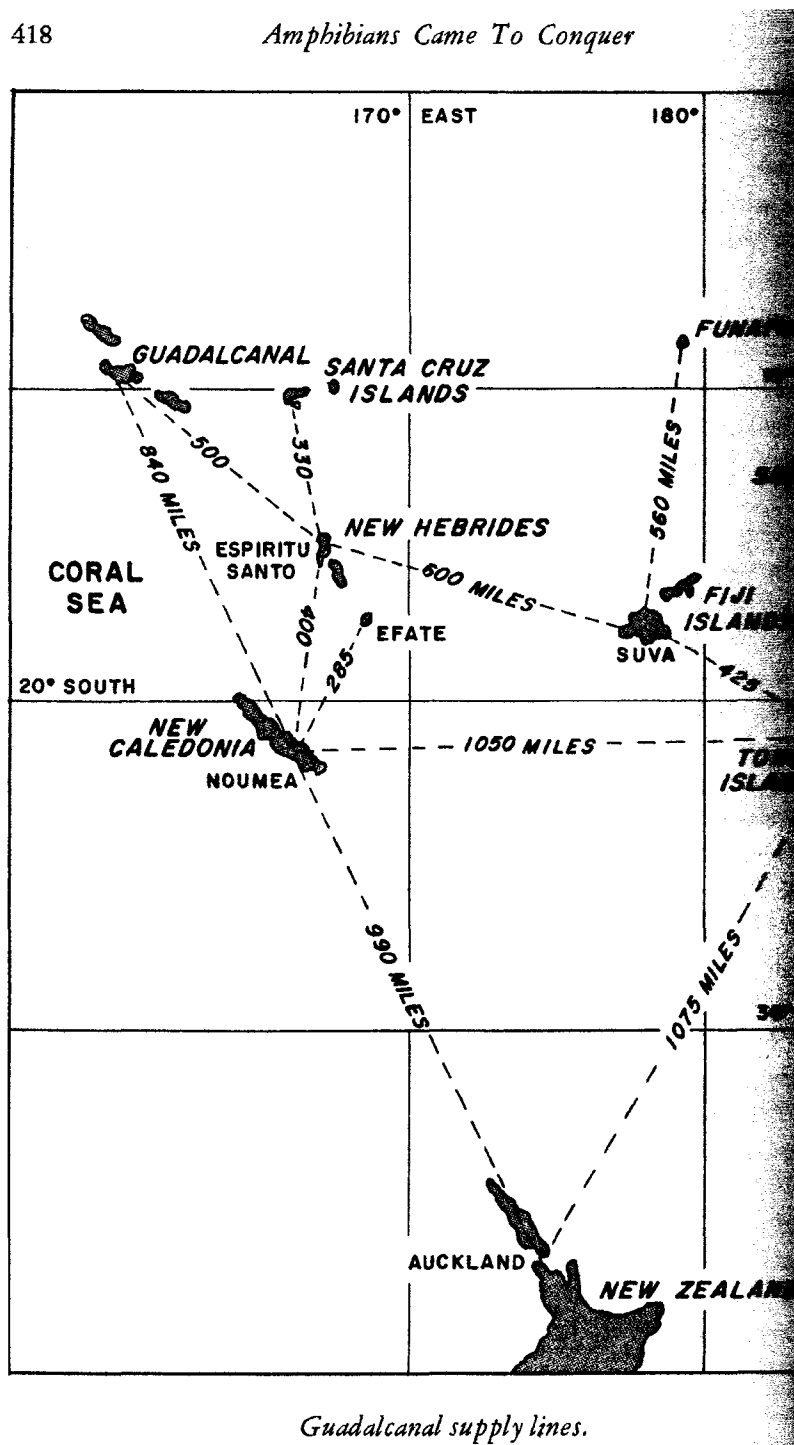
Source: John Miller, *Guadalcanal: The First Offensive* (Washington, DC, Dept. of the Army, Office of Military History, 1949)

Appendix C

Advanced base proximity to Guadalcanal

418

Amphibians Came To Conquer



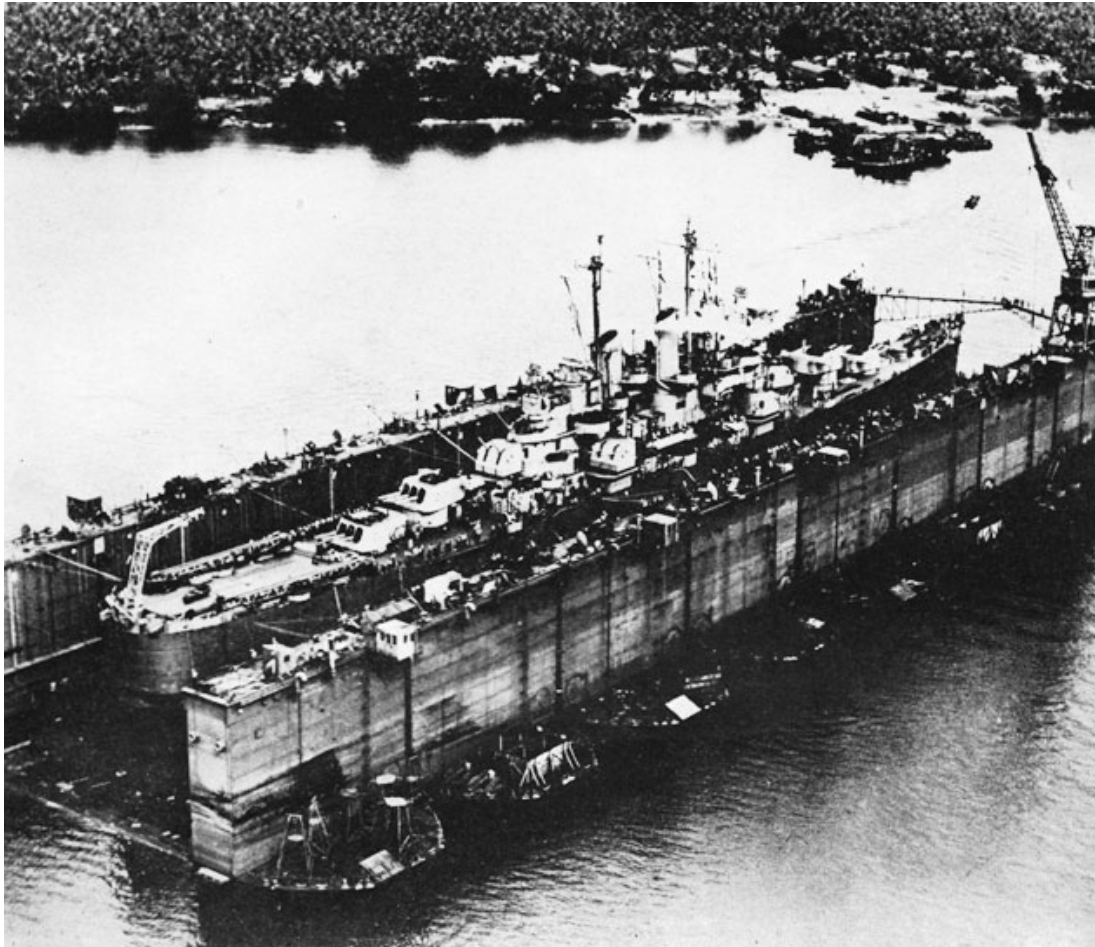
Source: Headquarters U.S. Marine Corps, *The Amphibians Came to Conquer*. FMFRP 12-109-I. (Washington, DC: U.S. Marine Corps, September 26, 1991), 418

Appendix D
Navy mobile base anchored at the Ulithi atoll, 1945



Source: <http://www.thefewgoodmen.com/thefgmforum/threads/pic-gallery-aerial-photography-wwii.714/>

Appendix E
Floating dry dock used for underway repair of ships



Source: Department of the Navy, Bureau of Docks and Yards, *Building the Navy's Bases in World War II*, (Washington, DC: US Government Printing Office, 1947), 212

Appendix F

MPSRON Operational Locations

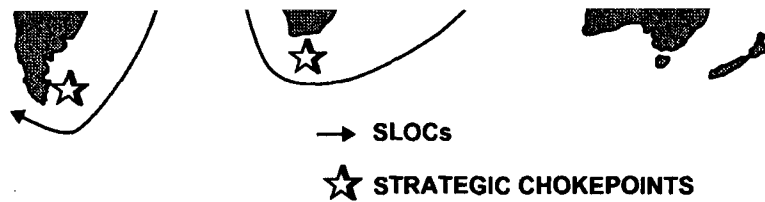


Figure 1-1. MPSRON Operational Locations.

ation of forces in a specific area. The permits rapid deployment into secure where force introduction is essentially ed and is expected to remain so through val and assembly phase. The MPF MAGTF employment as follows:

ent an amphibious deployment or operation. Movement on advanced base

- Augment fleet defense by providing support from ashore.

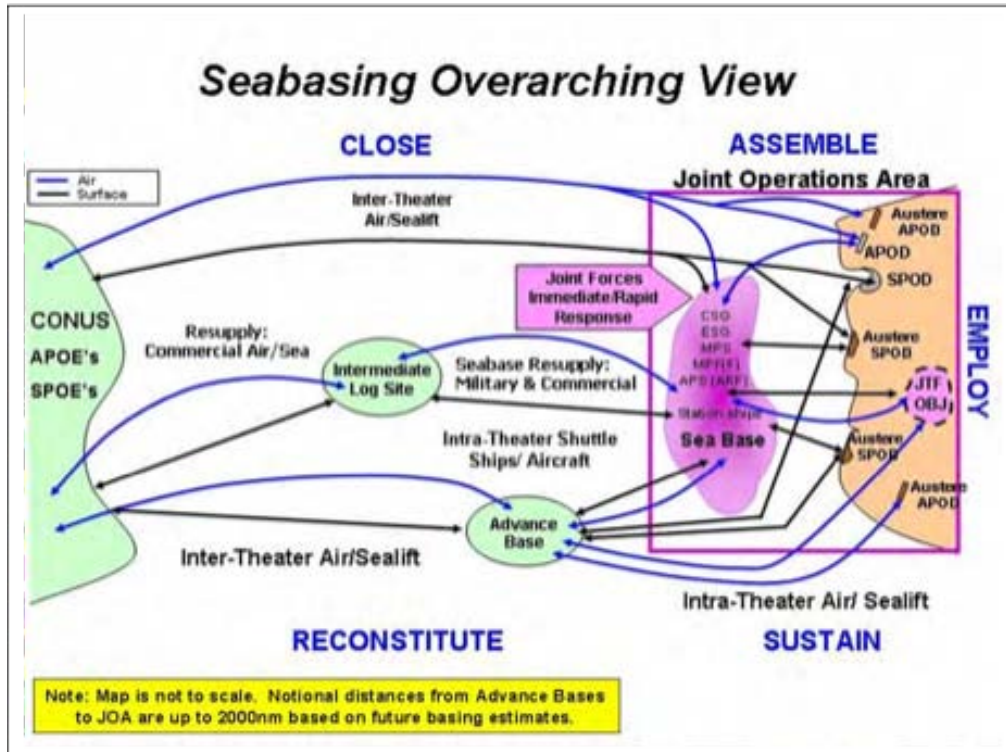
Establishing the MPF MAGTF Ashore

The essential requirement for an MPF of a secure environment that allows for the and offload of ships and aircraft and in

Source: Headquarters U.S. Marine Corps, *Maritime Prepositioning Force Operations*. MCWP 3-32. (Washington, DC: U.S. Marine Corps, February 24, 2004), 1-3

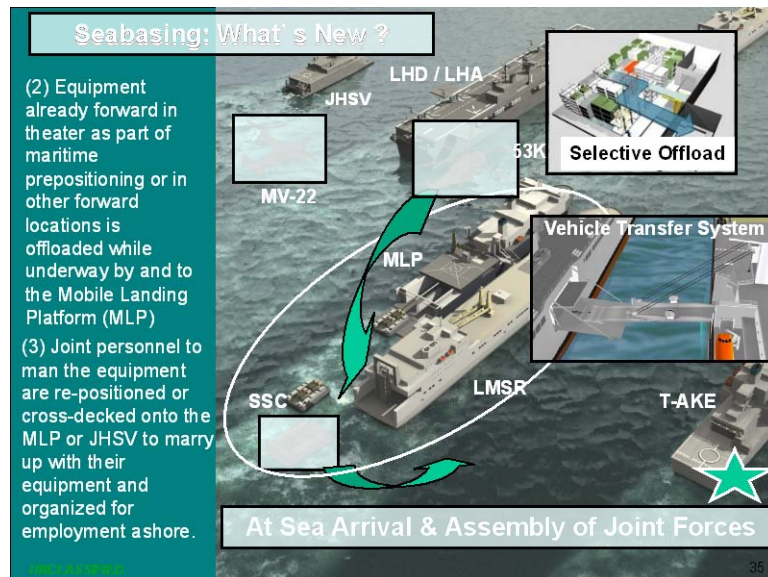
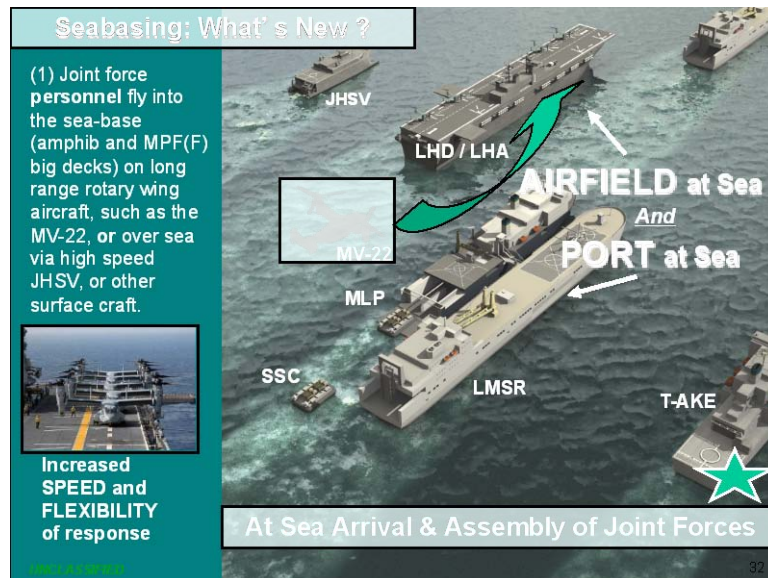
Appendix G

Joint Integration Concept: Seabasing Illustration



Appendix H

Seabasing Integration Illustration



Current Shortfalls in Technology and Doctrine:

- Only (1) MLP, and (2) T-AKE, and (3) LMSR in support of the USMC
- The T-AKE is not capable of direct interface with seaborne connectors. This requires additional aircraft sorties to conduct sustainment from these ships.
- Limitations in selective offload technology and integration with legacy MPF “dense-packed” ships.

Source: US Marine Corps Combat Development Command, Seabasing Integration Division Brief, *Expeditionary Ship Capabilities*, (Quantico, VA,; Headquarters, Department of Defense, January, 2010), Slides 32 and 35

Endnotes

- ¹ U.S. Department of Defense, *Defense Strategic Guidance* (DSG), January 3, 2012, 1
- ² DSG, 1
- ³ DSG, 2
- ⁴ DSG, 2
- ⁵ DSG, 3
- ⁶ U.S. Department of Defense, *National Military Strategy* (NMS), February 8, 2011, 18
- ⁷ Thomas Kane, *Military Logistics and Strategic Performance* (Portland, OR: Frank Cass Publishers, 2001), 40
- ⁸ Kane, 40
- ⁹ Worrall Carter, *Beans, bullets, and black oil: the story of fleet logistics afloat in the Pacific during World War II* (Newport, RI: Naval War College Press, 1998), 1
- ¹⁰ Emily Goldman, *Sunken Treaties* (University Park, PA: The Pennsylvania State University Press, 1994), 63
- ¹¹ Goldman, 128
- ¹² Carter, 3
- ¹³ Kane, 39
- ¹⁴ Carter, 4
- ¹⁵ Robert Coakley and Richard Leighton, *Global Logistics and Strategy, 1940-1943* (Washington, D.C.: Center of Military History, U.S. Army, 1995), 150
- ¹⁶ Coakley and Leighton, 150
- ¹⁷ Coakley and Leighton, 166
- ¹⁸ Coakley and Leighton, 150
- ¹⁹ Atolls, unlike islands, are geological structures created when an ancient sea volcano recedes into the earth. As the land mass of the volcano settles, coral grows around it, forming circular or semi-circular patterns. Upon complete settlement of the volcanic land mass, the remaining coral structure resembles a lagoon. Many such atoll chains provide natural protected anchorage points for naval fleets.
- ²⁰ Duncan Ballantine, *U.S. Naval Logistics in the Second World War*, (Newport, RI: Naval War College Press, 1998), 60
- ²¹ Coakley and Leighton, 155
- ²² FMFRP 12-109-I, 422
- ²³ Coakley and Leighton, 177
- ²⁴ Coakley and Leighton, 179
- ²⁵ Coakley and Leighton, 181
- ²⁶ Coakley and Leighton, 182
- ²⁷ Coakley and Leighton, 185
- ²⁸ James Woods, *Japanese Military Strategy in the Pacific War* (Lanham, MD.: Rowman & Littlefield, 2007), 9
- ²⁹ Jack Coggins, *The Campaign for Guadalcanal* (Garden City, NY.: Doubleday, 1972), 15, and Richard Frank, *Guadalcanal: The Definitive Account of the Landmark Battle* (New York, NY: Penguin Books, 1992), 11
- ³⁰ Kane, 5
- ³¹ John Zimmerman, *The Guadalcanal Campaign* (Washington: Historical Division, U.S. Marine Corps, 1949), 1

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- ³² Jose Gonzalez, “Operation WATCHTOWER: The Struggle Against Culmination” (Joint Campaign Analysis Paper, Marine Corps University, 2012), 4
- ³³ Kane, 56
- ³⁴ Kane, 56
- ³⁵ Coakley and Leighton, 390
- ³⁶ Headquarters U.S. Marine Corps, *The Amphibians Came to Conquer*. FMFRP 12-109-I. (Washington, DC: U.S. Marine Corps, September 26, 1991), 416
- ³⁷ Zimmerman, 52
- ³⁸ FMFRP 12-109-I, 407
- ³⁹ Coakley and Leighton, 399
- ⁴⁰ FMFRP 12-109-I, 421
- ⁴¹ Coakley and Leighton, 403
- ⁴² Coakley and Leighton, 403
- ⁴³ Robert Browning, *U.S. Merchant Vessel War Casualties of World War II*, (Annapolis, MD.: Naval Institute Press, 1996), 1
- ⁴⁴ FMFRP 12-109-I, 499
- ⁴⁵ Coakley and Leighton, 406
- ⁴⁶ FMFRP 12-109-I, 416
- ⁴⁷ Kane, 57
- ⁴⁸ Ronald Spector, *The Eagle Against the Sun*, (New York, NY.: The Free Press, 1985), 254-256
- ⁴⁹ Coakley and Leighton, 396
- ⁵⁰ Coakley and Leighton, 401
- ⁵¹ Coakley and Leighton, 417
- ⁵² Ballentine, 176
- ⁵³ Ballentine, 176
- ⁵⁴ Kane, 59
- ⁵⁵ Ballentine, 169
- ⁵⁶ Coakley and Leighton, 565
- ⁵⁷ Coakley and Leighton, 567
- ⁵⁸ Headquarters U.S. Marine Corps, *Maritime Prepositioning Force Operations*. MCWP 3-32. (Washington, DC: U.S. Marine Corps, February 24, 2004), 1-2
- ⁵⁹ Military Sealift Command, *2012 Year in Review* (Washington, DC: Department of the Navy, 2012), 16
- ⁶⁰ MCWP 3-32, 1-2
- ⁶¹ MCWP 3-32, 1-4
- ⁶² Headquarters, U.S. Navy, *Naval Operations Concepts*, 2010, (Washington, DC: Headquarters, U.S. Navy, August, 2010), 21
- ⁶³ Headquarters, Department of Defense, *Seabasing Joint Integrating Concept*, (Washington, DC: Headquarters, Department of Defense, August 1, 2005), 4
- ⁶⁴ Joint Integrating Concept, 33

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